

**Amendment and Response**

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Serial No.: 10/579,090

Confirmation No.: 5257

Filed: April 11, 2007

For: DNA SEQUENCE AND EXPRESSED RECOMBINANT GLYCOPROTEINS RELATED TO FELINE THYROTROPIN

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**Amendments to the Claims**

This listing of claims replaces all prior versions, and listings, of claims in the above-identified application:

1. (Canceled)
2. (Currently amended) [[The]] An isolated feline thyrotropin  $\beta$ -subunit polypeptide of claim 1, wherein the amino acid sequence consists essentially of SEQ ID NO: 1.
3. (Currently amended) The feline thyrotropin  $\beta$ -subunit polypeptide of claim [[1]] 59, further comprising a signal sequence.
- 4-8. (Canceled)
9. (Withdrawn/currently amended) [[An]] The isolated feline thyrotropin yoked polypeptide of claim 13, the polypeptide comprising [[an]] the amino acid sequence with at least 80% identity to SEQ ID NO: 5.
- 10-12. (Canceled)
13. (Withdrawn/currently amended) [[The]] An isolated feline thyrotropin yoked polypeptide of claim 9, the polypeptide comprising a first polypeptide comprising SEQ ID NO: 1 and a second polypeptide comprising a thyrotropin  $\alpha$  subunit polypeptide SEQ ID NO: 3, wherein the first polypeptide and second polypeptide sequences are connected by a spacer peptide.

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14-33. (Canceled)

34. (Withdrawn/currently amended) A method of treating a mammal suspected of having hyperthyroidism, the method comprising:

administering to the mammal a composition comprising the feline thyrotropin  $\beta$ -subunit polypeptide of claim [[1]] 70.

35. (Withdrawn) The method of claim 34, wherein the mammal is a cat.

36. (Withdrawn) The method of claim 34, wherein the method further comprises sensitizing the thyroid to increase the response of the thyroid to ablative treatment with radioiodide.

37. (Withdrawn/currently amended) A pharmaceutical composition comprising a pharmaceutically acceptable carrier and a feline thyrotropin heterodimer comprising a feline thyrotropin  $\alpha$ -subunit and the  $\beta$ -subunit polypeptide of claim [[1]] 70, or a feline thyrotropin yoked polypeptide of claim [[9]] 13.

38. (Withdrawn) The pharmaceutical composition of claim 37, wherein the composition is formulated as a single unit dosage.

39-58. (Canceled).

59. (Currently amended) [[The]] An isolated feline thyrotropin  $\beta$ -subunit polypeptide of claim ~~1~~, wherein the amino acid sequence comprises SEQ ID NO: 1.

60. (Previously Presented) The feline thyrotropin  $\beta$ -subunit polypeptide further comprising a

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signal sequence of claim 3, wherein the feline thyrotropin  $\beta$ -subunit polypeptide further comprising a signal sequence comprises SEQ ID NO: 2.

61. (Currently amended) An isolated thyrotropin heterodimer comprising the feline thyrotropin  $\beta$ -subunit polypeptide of claim [[1]] 59.

62. (Withdrawn/currently amended) The isolated thyrotropin heterodimer of claim 61 further comprising a thyrotropin  $\alpha$ -subunit polypeptide.

63. (Withdrawn/currently amended) The isolated thyrotropin heterodimer of claim 62 wherein the thyrotropin  $\alpha$ -subunit polypeptide comprises [[an]] the amino acid sequence ~~with at least 80% identity to~~ SEQ ID NO: 3.

64. (Canceled)

65. (Withdrawn/currently amended) The isolated thyrotropin heterodimer of claim 62 wherein the thyrotropin  $\alpha$ -subunit polypeptide comprises [[an]] the amino acid sequence ~~with at least 80% identity to~~ SEQ ID NO: 4.

66-69. (Canceled)

70. (Currently amended) [[A]] An isolated polypeptide comprising [[an]] the amino acid sequence ~~with at least 80% identity to~~ SEQ ID NO: 1.

71. (Canceled)

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72. (Currently amended) The polypeptide of claim 70, the polypeptide comprising [[an]] the amino acid sequence with at least 80% identity to SEQ ID NO: 2.

73. (Withdrawn/currently amended) The polypeptide of claim ~~[[69]]~~ 70 further comprising a thyrotropin  $\alpha$  subunit polypeptide an amino acid sequence with at least 80% identity to SEQ ID NO: 3.

74. (Withdrawn/currently amended) The polypeptide of claim ~~[[69]]~~ 70 further comprising [[an]] the amino acid sequence with at least 99% identity to SEQ ID NO: 3.

75. (Withdrawn/currently amended) The polypeptide of claim 73 wherein the amino acid sequence ~~with at least 80% identity to SEQ ID NO: 1~~ is covalently yoked to the amino acid sequence ~~with at least 80% identity to SEQ ID NO: 3~~ the thyrotropin  $\alpha$  subunit polypeptide by a spacer peptide.

76. (Canceled)

77. (Withdrawn/currently amended) The polypeptide of claim ~~[[76]]~~ 73 comprising SEQ ID NO: 5 or comprising SEQ ID NO: 6.

78. (Withdrawn) The polypeptide of claim 75 comprising the amino acid sequence of SEQ ID NO:1 covalently yoked to the amino acid sequence of SEQ ID NO: 3 by a spacer peptide.

79. (Withdrawn/currently amended) The polypeptide of claim 75, wherein the 5' to 3' order is the amino acid sequence ~~with at least 80% identity to~~ comprising SEQ ID NO: 1, the spacer

peptide, followed by the thyrotropin  $\alpha$  subunit polypeptide amino acid sequence with at least 80% identity to SEQ ID NO: 3.

80. (Withdrawn) The polypeptide of claim 75 wherein the spacer peptide is the chorionic gonadotropin CTP spacer polypeptide (SEQ ID NO:13).

81. (Currently amended) A kit comprising the feline thyrotropin  $\beta$ -subunit polypeptide of claim [[1]] 70 and packaging materials.

82. (Currently amended) A kit comprising the feline thyrotropin  $\beta$ -subunit polypeptide of claim [[1]] 70 and a thyroid radiosensitizing agent radioiodide.

83. (Currently amended) A kit comprising the feline thyrotropin  $\beta$ -subunit polypeptide of claim [[1]] 70 and an anti-thyrotropin antibody.

84. (Canceled)

85. (Previously Presented) A composition comprising the polypeptide of claim 70.

86. (Withdrawn/currently amended) A method of making an antibody, the method comprising immunizing an animal with the feline thyrotropin  $\beta$ -subunit polypeptide of claim [[1]] 70.

87. (New) The polypeptide of claim 70 linked to an immunogenic carrier.

88. (New) A composition comprising the polypeptide of claim 87.

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89. (New) The composition of claim 85 further comprising a thyrotropin  $\alpha$  subunit polypeptide.
90. (New) A pharmaceutical composition comprising the isolated polypeptide of 70 and a pharmaceutically acceptable carrier.
91. (New) An immunoassay standard comprising the isolated polypeptide of claim 70.
92. (New) A fusion protein comprising the isolated polypeptide of claim 70.
93. (New) The fusion protein of claim 92, wherein the fusion protein further comprises a thyrotropin  $\alpha$  subunit polypeptide.
94. (New) An isolated antibody that specifically binds to the isolated polypeptide of claim 70.
95. (New) A method of detecting feline thyrotropin in a sample, the method comprising contacting a sample with an antibody of claim 94.
96. (New) An isolated polynucleotide comprising a nucleic acid sequence encoding the polypeptide of claim 70.
97. (New) The isolated polynucleotide of claim 96, wherein the nucleic acid sequence is selected from the group consisting of SEQ ID NO: 7, SEQ ID NO:8, SEQ ID NO:11, and SEQ ID NO:12.

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98. (New) An isolated polypeptide comprising an amino acid sequence with at least 99% identity to SEQ ID NO: 1.